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10/026,699	12/27/2001	Toyohito Asanuma	21994/0037	9271

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 08/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,699

Applicant(s)

ASANUMA ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.                      6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

***The claims are poorly drafted. The applicant should pay close attention to the following comments and the basis for the assertions/interpretations taken directly from the specification to correct the flaws in the claims.***

In claim 1, the exposure of the resist pattern using the cutting laser step should be directly after the coating photoresist step. A development step needs to be recited after the cutting step (spec at 6/15-17 and 12/24-28), followed by an etching of the glass substrate (6/20-21) and then the etching of the surface of the resist layer to reduce the thickness need to be recited for the claim to be complete (recited, 6/22-25). (see MPEP 2172.01-unclaimed essential subject matter). Without the development, the pattern shown in figure 2a is not produced and without the first etching of the substrate, the pO area in figure 2b is not formed in the substrate. After the etching of the resist layer, a second etching of the substrate must be recited to form the groove and pits in the substrate shown in figure 2d and to be complete (6/26-29). The second etchings of the surface of the resist layer is the ashing the resist process, which removes the remaining resist layer and therefore one or the other should be deleted (6/30-31). In the first oxygen etch step. please indicate that the resist layer is thinned until the groove pattern contacts the glass substrate surface (13/2-5 and 8/36-9/3).

In claims 2 and 4, "read-in " should be - - lead-in- - (see figure 1)

In claims 2 and 4, "a layer at least composed of" (third from last line), should read - - a plurality of layers comprising at least- - .

In claims 2 and 4, the location of the layers in the last three lines of the claims should be specified.

**In claims 2-5, it is not entirely clear if the applicant is attempting to claim the glass master optical disks derived therefrom. (see spec at 14/23-32). Based upon the preamble and the language at the end of the claims, the examiner interprets the claims are embracing the optical disk described on page 14 at lines 28-32. The recited steps are incomplete as discussed above and further lack the steps of forming a disk stamper from the patterned glass disk master and molding the transparent disk plate required to be a complete product by process recitation.**

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Steps critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

In claims the exposure of the resist pattern using the cutting laser step should be directly after the coating photoresist step. A development step needs to be recited after the cutting step (spec at 6/15-17 and 12/24-28), followed by an etching of the glass substrate (6/20-21) and then the etching of the surface of the resist layer to reduce the thickness need to be recited for the

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claim to be complete (recited, 6/22-25). (see MPEP 2172.01-unclaimed essential subject matter).

Without the development, the pattern shown in figure 2a is not produced and without the first etching of the substrate, the pO area in figure 2b is not formed in the substrate. After the etching of the resist layer, a second etching of the substrate must be recited to form the groove and pits in the substrate shown in figure 2d and to be complete (6/26-29). The second etchings of the surface of the resist layer is the ashing the resist process, which removes the remaining resist layer and therefore one or the other should be deleted (6/30-31). In the first oxygen etch step, please indicate that the resist layer is thinned until the groove pattern contacts the glass substrate surface (13/2-5 and 8/36-9/3).

Claims 2 and 4 also lack the further the steps of forming a disk stamper from the patterned glass disk master and molding the transparent disk plate required to be a complete product by process recitation.

5. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for two ashing processes, does not reasonably provide enablement for three ashing processes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

Claim 1 recites essentially three ashing processes (these are not all named as such, but as oxygen plasma etching the resist, in fact are), but the disclosed processes in the specification only recite two.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 4 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Kondo et al. '678.

Kondo et al. '678 describe a hybrid optical disk with a ROM area (104) and a RAM area (105) with respect to figures 1, 2 and 10-11b (7/39-50). The master appears to be a resist master formed without etching the underlying substrate (4/27-61 and 18/23-21/50). The provision of copyright protection is disclosed. (6/46-57).

The defects disclosed by the applicant as introduced by the oxygen etchings at pressures or compositions outside the range recited in the claims are not relevant as no oxygen etching of the resist takes place. The stamper is formed directly from the resist image without etchings the glass substrate. The examiner holds that the product of Kondo et al. '678 meets the claims and the applicant has the burden of showing as set forth in MPEP 2113, that the product produced by the claimed process results in a materially different product from that of Kondo et al. '678.

9. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Yanagimachi et al. '758 or Ha '478, in view of Ueki 713.

Yanagimachi et al. '758 describe a hybrid optical disk with a ROM area and a RAM area with respect to figures 1a and 1b (6/18-20). The master is a resist master formed without etching the underlying substrate (6/12-45).

Ha '478 describes a hybrid optical disk with a ROM area (30) and a RAM area (50) with respect to figures 1 - 3b. The master is a resist master formed without etching the underlying substrate (4/46-6/31). A watermark is formed as shown in figure 1.

Ueki 713 teaches phase change optical recording media according to figure 2 (9/60-10/4). The use of hybrid media using phase change recording layers is disclosed in the 23<sup>rd</sup> embodiment. (35/22-43).

It would have been obvious to one skilled in the art to modify the hybrid recording media of either Yanagimachi et al. '758 or Ha '478 by using a phase change recording layer protected by dielectric layers on either side as disclosed by Ueki 713 to allow the medium to be re-recorded over and over on rather than write-once.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Junji et al. '531 combined with Yang et al. '772, in view of either Kondo et al. '678, Yanagimachi et al. '758 or Ha '478.

Junji et al. '531 teaches a process for forming a mastering an optical disk substrate, where the resist is coated, exposed to an argon ion laser, developed, a portion of the pattern transferred into the glass substrate, a first ashing using an oxygen plasma at pressures of 10-50 mTorr (1.32-6.66 Pa) to thin the resist, a second etching to complete the transfer of the patterns into the substrate and a final ashing to remove the remaining resist. (3/40-4/56)

Yang et al. '772 teaches that ashing of a resist is preformed using oxygen and argon at pressures of 1-1000 mtorr. This is disclosed as able to completely remove the resist layer. (3/39-56).

It would have been obvious to one skilled in the art to modify the process of Junji et al. '531 through the use of argon/oxygen ashing plasmas to thin or remove the resist, such as those disclosed by Yang et al. '772 with a reasonable expectation of completely cleanly removing resist materials based upon the disclosure of Yang et al. '772 and to use pressures in the 10 mTorr range based upon the disclosure that these work well for ashing processes and further to use the resulting process to provide masters suitable for forming substrates for hybrid optical recording media such as those taught by either Kondo et al. '678, Yanagimachi et al. '758 or Ha '478 with the advantage that the master itself is more rugged being made of glass, than one made solely from resist and would allow more stampers and hence more substrate to be made from it and the hybrid optical recording media are more desirable due to the flexibility in having ROM and recordable memory areas.

The applicant has data in the instant specification with respect to figures 6-9, but it is not clear if this data provides a relevant showing beyond the resist materials used, specifically the Novolac resin disclosed on page 11 at line 34.

In making this rejection, the examiner reviewed the specification and assumed that the second etch of the resist and the ashing step were the same step, merely redundantly recited. The examiner notes that the enablement is not present for three ashing steps.



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11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirokane et al. '129 combined with Yang et al. '772, in view of either Kondo et al. '678, Yanagimachi et al. '758 or Ha '478.

Hirokane et al. '129 teaches a process for forming a mastering an optical disk substrate, where the resist is coated, exposed to an argon ion laser, developed, a portion of the pattern transferred into the glass substrate, a first ashing using an oxygen plasma at pressures of 70 mTorr (9/33 Pa) to thin the resist, a second etching to complete the transfer of the patterns into the substrate and a final ashing to remove the remaining resist. (15/34-16/28). The formation of stampers from this is disclosed. (16/36-47).

It would have been obvious to one skilled in the art to modify the process of Hirokane et al. '129 through the use of argon/oxygen ashing plasmas to thin or remove the resist, such as those disclosed by Yang et al. '772 with a reasonable expectation of completely cleanly removing resist materials based upon the disclosure of Yang et al. '772 and to use pressures in the 5-10 mTorr range based upon the disclosure that these work well for ashing processes by Yang et al. '772 and further to use the resulting process to provide masters suitable for forming substrates for hybrid optical recording media such as those taught by either Kondo et al. '678, Yanagimachi et al. '758 or Ha '478 with the advantage that the master itself is more rugged being made of glass, than one made solely from resist and would allow more stampers and hence more substrate to be made from it and the hybrid optical recording media are more desirable due to the flexibility in having ROM and recordable memory areas.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Usami et al. EP 0467716, Nakagawa et al. '852 and Fujiwara et al. JP 2000-260069 teach dye based hybrid optical recording media.

Takemura et al. '640 disclose the use of phase change re0writable areas in hybrid optical recording media.

Amano '350 teaches oxygen and argon forming a plasma for ashing a resist using pressures of 1.5 pascals. (9/32-42).

13 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranntt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranntt  
Primary Examiner  
Art Unit 1756

August 13, 2003